

'This question paper contains **3** printed pages]

Roll No.

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S. No. of Question Paper : 5273

Unique Paper Code : 2494002002

Name of the Paper : **Nutrition and Food Science**

Name of the Course : **B.Sc. (Hons.) Biochemistry**

Semester : VIII

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are 6 questions.

Attempt *four* questions in all.

Question No. 1 is compulsory.

All questions carry equal marks.

1. State whether the following statements are *True* or *False* with reasoning :
 - (i) Prebiotics serve as food for beneficial gut bacteria.
 - (ii) Amino acid complementation improves the overall protein quality of a diet.
 - (iii) Botulism is caused by toxins produced by *Clostridium botulinum*.

P.T.O.

- (iv) Fad diets always provide balanced nutrition for long-term health.
 - (v) Vitamin K deficiency leads to night blindness.
 - (vi) Selenium functions as antioxidant.
 - (vii) Specific Dynamic Action (SDA) is highest for proteins compared to carbohydrates and fats.
 - (viii) Menkes disease is caused by copper deficiency.
 - (ix) Food preservatives are always beneficial for human health.
 - (x) Saturated fatty acids (SFA) are beneficial for gut health. $1.5 \times 10 = 15$
2. (a) Differentiate between :
- (i) Glycemic Index and Glycemic Response.
 - (ii) Food allergy and Food poisoning.
 - (iii) Deficiency diseases and Toxicity of vitamins.
- (b) Define the following :
- (i) PDCAAS
 - (ii) RMR
 - (iii) BV
 - (iv) NPU.

 $3 \times 3 = 9,6$

3. (a) Explain the role of gut microbiome in maintaining health. What are probiotics ? Provide examples.
- (b) What are the factors that affect the calcium absorption in the gastrointestinal tract ?
- (c) Explain the basis for Recommended Dietary Allowances (RDA) for various age groups. 6,5,4
4. (a) What are anti-nutritional factors ? Explain amino acid complementation and supplementation with examples.
- (b) Explain the role of vitamin C in human health.
- (c) What do you understand by essential amino acids, non-essential amino acids and conditionally essential amino acids ? 6,5,4
5. (a) What are the factors affecting Basal Metabolic Rate (BMR) ?
- (b) Write a note on essential fatty acids and their deficiency. Discuss the significance of omega-3/omega-6 ratio in human health.
- (c) What is the role of zinc in the human body ? 6,6,3
6. Write short notes on any *three* : 3×5=15
- (a) Balanced diet
- (b) Medicinal role of food
- (c) Role of Vitamin A in visual cycle.

